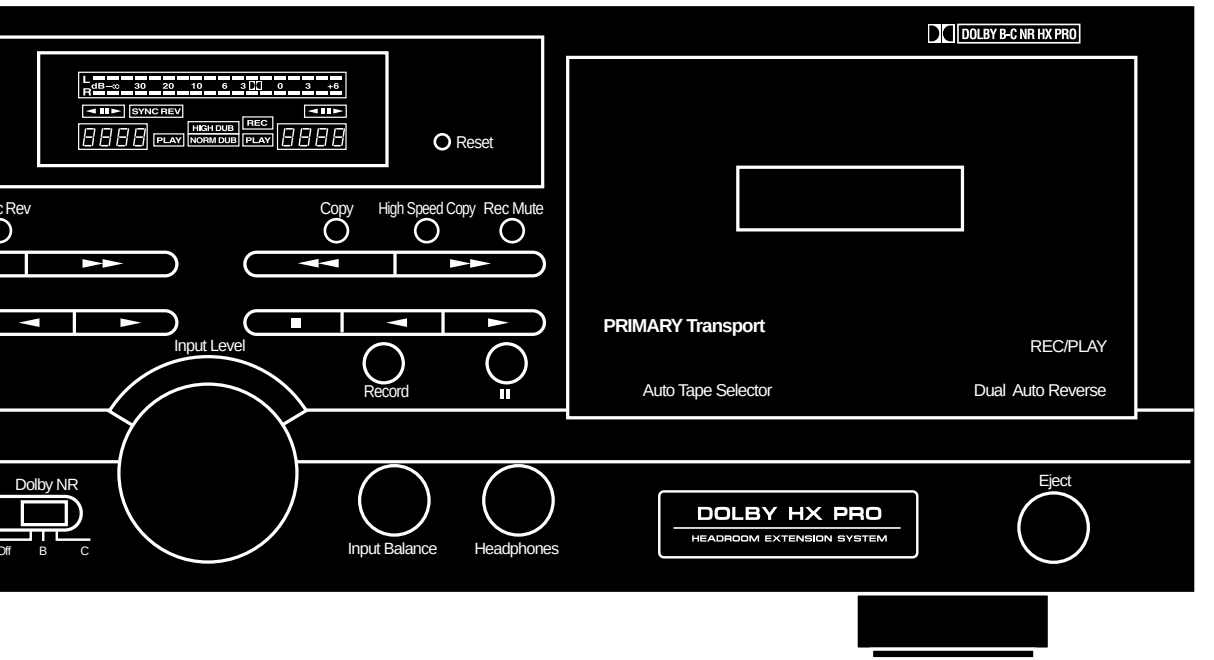
Harman Kardon DC520
Dual Cassette Deck



Owner's Manual

harman/kardon

Owner's Manual
DC520 Dual Cassette Deck

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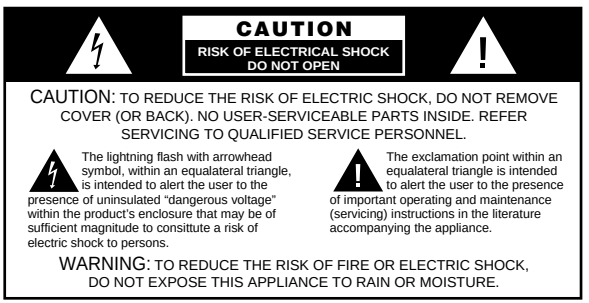
CAUTION
RISK OF ELECTRICAL SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
The lightning flash with arrowhead symbol, within an equalateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to consittute a risk of electric shock to persons.
The exclamation point within an equalateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE THE GROUNDING PLUG ON THE POWER CORD, OR USE ANY PLUG OR EXTENSION CORD THAT DOES NOT HAVE A GROUNDING PLUG PROVIDED. MAKE CERTAIN THAT THE AC OUTLET IS PROPERLY GROUNDED. DO NOT USE AN ADAPTER PLUG WITH THIS PRODUCT.

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H A Harman International Company

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Introduction and Safety Information

Thank you for choosing the Harman Kardon DC520 dual cassette deck. The DC520 is an exceptionally well engineered product that offers high performance and ease of use.

We ask that you take a few minutes to read through this Owner's Manual to familiarize yourself with the controls and functions. This brief investment of time will yield dividends in the form of years of listening pleasure.

If you have any questions about this product, its installation or operation, please contact the retailer or custom installer who sold you the product. They are your best source for local information.

Description and Features

- Dual Mode Copying for high quality dubs in either "real time" or at "high speed."
- Auto Tape Sensor automatically recognizes the type of tape in use and sets the bias/equalization circuits accordingly.
- Dolby* B-type and C-type noise reduction for recordings that are virtually free of noise and hiss.
- Dolby HX Pro provides more accurate recording of high frequencies without sacrificing signal to noise ratio or causing distortion.
- Sync Reverse Dubbing programs the record system to compensate for record and playback tapes of unequal length.
- Dual Auto Reverse with multiple playback modes for extended uninterrupted listening.

Important Safety Information

Verify Line Voltage Before Use
Your DC520 has been designed for use in North America with 120 volt AC current. Connection to a line voltage other than that for which it is intended can create a safety and fire hazard, and may damage the unit.

If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contact your selling dealer before plugging the unit into a wall outlet.

Do Not Use Extension Cords
To avoid safety hazards, use only the power cord supplied with your unit. If a replacement cord is used, make certain that it is of similar gauge. We do not recommend that extension cords be used with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them. Damaged power cords should be replaced immediately with cords meeting factory specifications.

Handle the AC Power Cord Gently
When disconnecting the power cord from an AC outlet, always pull the plug, never pull the cord. If you do not intend to use the unit for any considerable length of time, disconnect the plug from the AC outlet.

Do Not Open The Cabinet
There are no user serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your guarantee. If water or any metal object such as a paper clip, wire or a staple accidentally falls inside the unit, disconnect it from the AC power source immediately, and consult an authorized service station.

Installation Location
- To assure proper operation, and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the weight of the product.
- Make certain that proper space is provided both above and below the unit for ventilation. If this product will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet.
- Do not place the unit directly on a carpeted surface.
- Avoid installation in extremely hot or cold locations, or an area that is exposed to direct sunlight or heating equipment.
- Avoid moist or humid locations.
- Do not obstruct or cover any ventilation slots.

Cleaning
When the unit gets dirty, wipe it with a clean, soft dry cloth. If necessary, wipe it with a soft cloth dampened with mild soapy water, then a fresh cloth with clean water. Wipe dry immediately with a dry cloth. NEVER use benzene, thinner, alcohol or any other volatile cleaning agent. Do not use abrasive cleaners, as they may damage the finish of metal parts. Avoid spraying insecticide near the unit.

Moving The Unit
Before moving the unit, be certain to disconnect any interconnection cords with other components, and make certain that you disconnect the unit from the AC outlet.

*Dolby is a trademark of Dolby Laboratories

Important Information for the User

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. The limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that harmful interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between this unit and the receiver being interfered with.
- Connect this unit into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept interference received, including interference that may cause undesired operation.

Note: Changes or modifications may cause this unit to fail to comply with Part 15 of the FCC Rules and may void the user's authority to operate the equipment.

Unpacking and Installation

The carton and shipping materials used to protect your new DC520 during shipment were specially designed to cushion it from shock and vibration. We suggest that you save the carton and packing materials for use in shipping if you move or should the unit ever need repair.

To minimize the size of the carton in storage, you may wish to flatten it. This is done by carefully slitting the tape seams on the bottom and collapsing the carton down to a more two dimensional appearance. Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag.

If you do not wish to save the packaging materials, please note that the carton and other sections of the shipping protection are recyclable. Please respect the environment and discard those materials at a local recycling center.

When positioning your DC520 in its final location, make certain that any shelf or stand is capable of supporting it's weight, and that there is adequate ventilation on all sides, as well as on the top and bottom. Do not place CDs, record jackets, owner's manuals, or other paper on top of, or beneath the unit. This will block air flow and create a potential fire hazard. If the unit is to be enclosed in a cabinet or rack, make certain that there is adequate air circulation, with a means provided for hot air to exit, and for cool air to be brought in.

CONVENTIONS

In order to help you use this manual and make the proper system connections, certain conventions appear throughout the manual.

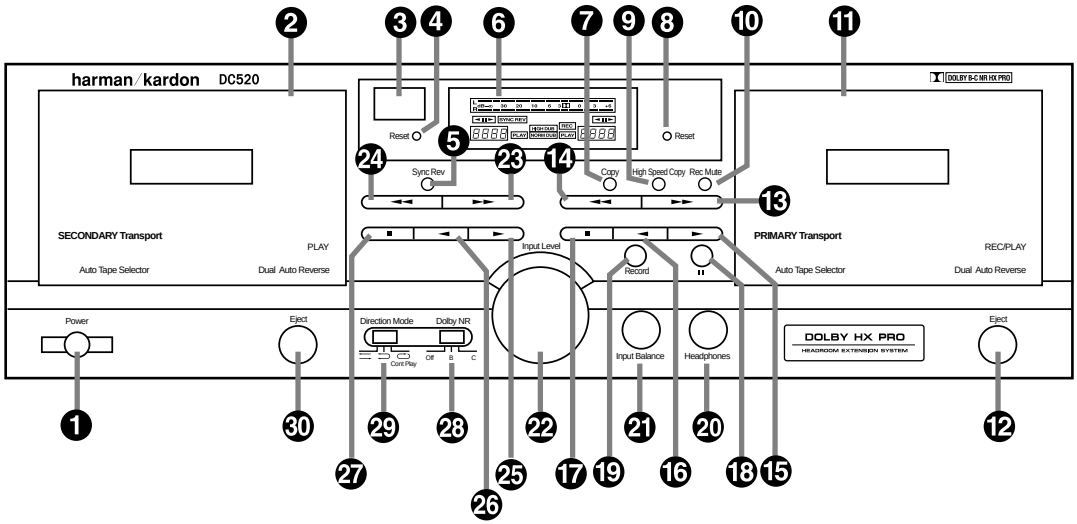
EXAMPLE – (bold type) indicates a specific front panel button

EXAMPLE – (OCR type) indicates a message that is visible in the front panel display

❶ – (number in a circle) indicates a specific front panel control

1 – (number in a square) indicates an indicator in the front panel display

Front Panel Controls



❶ Power Switch – Press this switch once to turn it on. Press it again to turn the unit off. An indicator around the switch turns green when the unit is turned on.

❷ Secondary Transport – This is the secondary, playback only, transport. Use it for tapes that will be the source material during dubbing operation.

❸ Remote Sensor – The remote sensor behind this area is compatible with the commands from many Harman Kardon remote controls. Keep this area clear if you wish to use the DC520 with a remote control. (not included)

❹ Secondary Counter Reset – Press this button to reset the counter for the secondary transport to "0000"

❺ Sync Reverse – This button activates circuitry that compensates for record and playback tapes of unequal length.

❻ Information Display – This display provides detail about the operation of the DC520. See the separate explanation of each indicator on page 4.

❼ Copy Button – Press this button to activate normal speed dubbing

❽ Primary Counter Reset – Press this button to reset the counter for the primary transport to "0000".

❾ High Speed Copy – Press this button to activate high speed dubbing.

❿ Record Mute – Press this button during recording to momentarily mute the input and insert blank space.

⓫ Primary Transport – Insert tapes here for recording or playback. This transport should always contain the record tape during dubbing.

⓬ Primary Transport Eject – Press this button to open the primary transport door.

⓭ Primary Transport Fast Forward – Press this button to rapidly advance the primary tape.

⓮ Primary Transport Rewind – Press this button to rewind the primary tape.

⓯ Primary Transport Forward Play – Press this button to play the primary tape.

⓰ Primary Transport Reverse Play – Press this button to play the primary tape in a reverse direction.

⓱ Primary Transport Stop – Press this button to stop the primary transport.

⓲ Pause – Press this button to pause the transport in use.

⓳ Record – Press this button to place the unit in the record ready mode. Press it simultaneously with a play button ⓯⓰ to start a recording.

⓴ Headphone Jack – Insert stereo headphones here for private listening or record monitoring.

㉑ Input Balance – This control adjusts the left/right record balance.

㉒ Input Level – This knob controls the input level during recordings.

㉓ Secondary Transport Fast Forward – Press this button to rapidly advance the secondary tape.

㉔ Secondary Transport Rewind – Press this button to rewind the secondary tape.

㉕ Secondary Transport Forward Play – Press this button to play the secondary tape.

㉖ Secondary Transport Reverse Play – Press this button to play the secondary tape in a reverse direction.

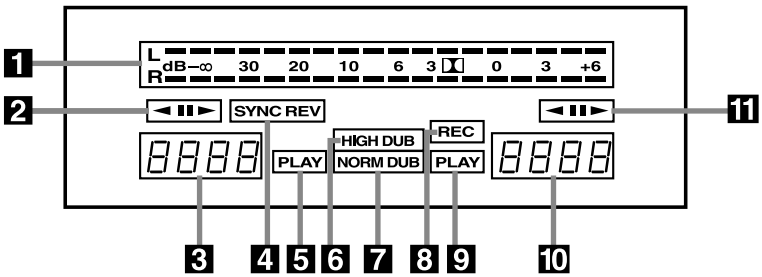
㉗ Secondary Transport Stop – Press this button to stop the secondary transport.

㉘ Dolby NR Selector – This switch selects which type of Dolby Noise Reduction, if any, is in use.

㉙ Direction Mode Selector – This switch selects the playback/auto reverse mode for the tape in use.

㉚ Secondary Transport Eject – Press this button to open the secondary transport door.

Front Panel Display



1 Peak Level Meter – Segments of this dual horizontal bar will illuminate to indicate the input level for recording or the output level on playback. The meter will "hold" the average constant level and flash to indicate momentary peaks.

2 Secondary Transport – Directional Indicators: These indicators display the movement of the secondary tape transport.

3 Secondary Transport Counter – This four digit display provides a relative indication of the tape position of the secondary transport.

4 Sync Rev – This indicator lights when the unit is programmed so that both decks reverse at the same time during dubbing.

5 Secondary Transport Play – The indicator lights when the secondary transport is in the Play mode.

6 High Dub – This indicator lights when the unit is in the high speed (twice normal time) dub mode.

7 Norm Dub – These indicators light during a dub recording to display the tape speed.

8 Rec – This indicator lights when a dub or recording is in progress.

9 Play – This indicator lights when the unit is in a playback mode. When it lights in tandem with the REC indicator **8**, a recording or dub is in process.

10 Primary Transport Counter – This four digit display provides a relative indication of the tape position of the Primary transport.

11 Primary Transport Directional Indicators – These indicators display the movement of the Primary tape transport.

Installation & Operation

Installation

Connecting the DC520 to your audio system is simple. Using standard RCA to RCA audio interconnect cords, connect the left and right **OUTPUT** jacks on the rear panel to the **TAPE INPUT** jacks of your receiver or preamplifier. Connect the **INPUT** jacks on the DC520 to the **TAPE OUTPUT** jacks of your receiver or pre-amp.

Connect the power to a non-switched AC wall output, or to the accessory outlet on the rear of another audio device in your system and you are ready to go!

NOTE: When using the accessory outlet on another product to power the DC520 make certain that it has the ability to power a device that draws at least 14 watts of current in addition to the requirements of other devices that may be plugged into the accessory outlets. If you use a "switched" outlet it is important to remember that the host product must be turned on in order for the DC520 to operate.

Single Deck Playback

The DC520 may be used as a conventional auto reverse audio cassette deck, playing back tapes from either transport.

1. Check the tape for excessive slack before use. If necessary, take up the slack by inserting a pencil into one of the cassette hubs and rotate the pencil to take up the slack.

2. Press the **EJECT** ⓬㉚ button for the transport you wish to use.

3. Insert the tape with the open edge facing down.

4. Gently press the door of the cassette compartment ❷⓱ closed.

5. Select the appropriate type of Dolby Noise Reduction, if any, using the **DOLBY NR** switch ㉘. This information is typically displayed on the label of prerecorded cassettes.

6. If you wish to clear the counter before playback, press the **RESET** button next to the transport you will be using. ❹❽

7. Press the **PLAY/** ◄ or ► button for the transport that will be used. Play can be in either the forward direction ⓯❺, which will play the "A" side of the tape, or reverse ⓰❻
to play the "B" side of the tape.

8. When the unit is in the play mode, tape movement may be momentarily stopped using the **PAUSE** button ⓲. Press the **PAUSE** button again to resume operation.

9. When the unit is in the play mode it will continue to run until the unit is manually stopped ⓱㉗, or until the end of the tape is reached. Using the Auto Reverse system, playback may continue through the second side of a tape, or it may run continuously. For information on Auto Reverse Functions, see pages 5–6.

Recording

To make a recording follow the instructions listed above for inserting the tape in the unit. Recordings may only be made using the Primary Transport on the right side of the unit.

NOTE: The DC520 will automatically sense the type of tape in use (conventional, chromium dioxide or metal) and make the necessary internal adjustments. No switch settings are required to indicate the tape type.

Once a tape has been inserted, follow these steps to make a recording:

1. Select the type of Dolby Noise Reduction desired, if any, using the **DOLBY NR** switch ㉘.

2. Press the **RECORD** button ⓳ to place the unit in the "Record Ready" mode and observe that the **LEVEL METER** 1 will begin to react to the incoming audio source. Adjust the **INPUT LEVEL CONTROL** ❷ so that the bars on the **INPUT METER** briefly reach the red "0 db" point when normal or chrome tapes are in use, or the red "+3dB" mark when metal tapes are used.

3. Adjust the **INPUT BALANCE CONTROL** ㉑ so that the left/right signal level inputs appear equal, if required.

4. Press the ◄ or ► button ⓯⓰ corresponding to the direction in which you wish to record. Recordings may be made in either the forward direction ⓯ which will record on the "A" side of the tape, or reverse ⓰ which will record on the "B" side of the tape.

5. To pause the tape transport during a recording, press **PAUSE** ⓲. Press the button again to resume recording.

6. Once a recording is started, it will continue until the end of the tape, or until the unit is manually stopped ⓱. Using the Auto Reverse system, recordings may continue through the second side of a tape. For information on Auto Reverse Functions, see pages 5–6.

NOTE: When the unit is in the RECORD mode, any material previously recorded on the tape will be erased.

Record Muting

The REC MUTE feature enables you to place blank spaces on tapes during recording. These spaces are useful in separating different portions of the program material, and the four second space is used to trigger the automatic program search systems found in many automotive and home cassette units.

Automatic Muting During a Recording
If you wish to insert a four second blank space during a recording, or to end a recording, press the **REC MUTE** button ⓴. The **REC** indicator 8 will flash and a four second blank space will be placed on the tape. Once the blank space is recorded the unit will stop and go into a Pause mode. Press the **PAUSE** button ⓲ to restart the recording.

To place a blank space longer than four seconds, press and hold the **REC MUTE** button ⓴ for the length of time the blank space is desired. When the button is released the unit will automatically go into the Pause mode. Press the **PAUSE** button ⓲ to resume recording.

Automatic Spacing Insert on a Stopped Tape
If you wish to insert a four second blank space before starting a recording, first press the **RECORD** button ⓳ to place the unit in the "Record Ready" mode. Press the **REC MUTE** button ⓴ and note that the transport will start and run for four seconds and then return to the pause mode.

Automatic Spacing Insert without Stopping the Tape
To place a blank space of less than four seconds on the tape without stopping tape motion press the **REC MUTE** ⓴ button once. Press the button a second time before four seconds elapse to place a blank space on the tape without stopping machine. Remember that the machine will go into a pause mode if the **REC MUTE** button is not pressed within 3½ seconds.

Auto Reverse Operation

The DC520 features Dual Auto Reverse operation, allowing a wide range of auto reverse functions that allow for automated, continuous playback and recording.

Tape direction and auto reverse functions is set by the **DIRECTION MODE** switch ❾. Operation of the unit will vary according to the switch setting, if one or both transports is in use, and if the unit is in playback or record.

Single Side Playback or Recording
To play or record only one side of a tape, place the **DIRECTION MODE** switch ❾ in the left position, over the ⟵ icon. With the switch in this mode, the DC520 will play or record in whichever direction is selected and then stop at the end of one side of the tape.

Auto Reverse Playback or Recording
For uninterrupted playback of both sides of a tape, place the **DIRECTION MODE**

❾ switch in the center position, over the ⇄ icon. With the switch in this mode, the playback and recording will continue through the full length of the first side of the tape. At the end of the first side of the tape, the unit will automatically switch directions and continue for the full length of the second side. At the end of the second side the unit will automatically stop.

Note: In playback this operation will function with either transport, depending on which **PLAY** button ⓯⓰❺❻ is pressed to start operation. Auto reverse recording is only possible using the Primary Transport.

Continuous Playback with One Transport

For continuous playback of a tape in either the Primary Transport or the Secondary Transport, but not both, place a tape only in the desired transport. Set the **DIRECTION MODE** switch ❾ in the far right position, over the ⟳ "Cont Play" icon.

Press either the forward or reverse play button on the transport to start the playback. The unit will play the entire first side of the cassette and automatically switch to the second side of the cassette. When both sides have played through once, the DC520 will automatically repeat the process so that each side is played a total of five times without interruption. At the conclusion of five cycles the unit will stop.

Continuous Playback with Both Transports

For maximum playback time, place a tape in both the Primary and Secondary Transports. Set the **DIRECTION MODE** ❾ switch in the far right position, over the ⟳ "Cont Play" icon. Press any of the **FORWARD** or **REVERSE PLAY** buttons to start the playback.

Once playback is started, the DC520 will first play the entire first side of the transport where the **PLAY** button was pressed. At the end of the first side, the unit will automatically play the second side of the tape. After the first tape has been played completely through, the unit will switch to the other transport, and play the first side, and then the second side of the tape in that transport.

This cycle will repeat five times, playing both sides of each cassette in succession. After five full cycles the unit will stop.

NOTE: Any of the Auto Reverse modes may be stopped at any time by pressing the **STOP** button ⓱㉗.

Counter Operation

Each transport has a separate tape counter 3 10 that indicates the motion of the transport and the relative amount of tape used. When in the normal or fast forward mode the numbers will increase. When the unit is in a reverse mode the numbers will decrease.

To reset either counter press the appropriate **RESET** button. ❹❽.

Tape Dubbing

The DC520 is capable of both normal and high speed dubbing for ease in making cassette copies. The steps for making a dub are slightly different from those used to make normal recordings, so please make note of the following steps:

1. Turn the DC520 on using the **POWER** switch ❶.

2. Open the transport doors by pressing both **EJECT** buttons ⓬㉚.

3. Place a blank tape in the Primary Transport ⓫ and the tape to be copied in the Secondary Transport ❷.

4. Press the **TRANSPORT REWIND** buttons ⓮㉔ so that both tapes are in their fully rewound position.

5. Select the tape direction mode using the **DIRECTION MODE** switch ❾.

• To dub only one side of a tape, place the switch in the far left position under the ⇄ icon.

• To dub both sides of a tape, place the switch in the center position, under the ⇄ icon.

6. Make certain that both transports are in the forward direction, as indicated by the ► arrow 2 11 above each tape counter display. If one transport is in the incorrect direction briefly press the appropriate **FORWARD PLAY** button ⓯❺ and then immediately press the **STOP** button ⓱㉗.

7. Press either the **COPY** button ❼ or the **HIGH SPEED COPY** button ❾ to start the dubbing process.

• High speed dubbing runs both transports at double speed, so that tapes are copied in half their normal running time. Note, however, that the high speed mode may produce a slightly lower quality copy. In addition, the High Speed mode is susceptible to interference from the horizontal scanning frequency of television sets. If your DC520 is located close to a TV set you may wish to use the normal speed Copy Mode.

• "Copy" starts a dub in "real time", where the dub takes the same time as the length of the cassette. This mode will produce a better quality dub, but without the time saving of High Speed.

8. When the dubbing is completed, both transports will stop, based on the setting of the **DIRECTION MODE** switch.

9. To stop the dubbing at any time, press either **STOP** button ⓱㉗.

Manual Editing During Dubbing
When making dubs in the "Copy" (Normal Speed) dub mode it is possible to skip some of the material on original tape.

To delete material from the original tape, press the **PAUSE** button ⓲ while the unwanted material is playing. The Primary Transport (record cassette) will stop while the Secondary Transport (playback cassette) will continue to play. Listen to the output of the DC520 using either the tape monitor mode on your audio system or the front panel headphone jack ⓴. When you wish to resume the recording, press the **PAUSE** button ⓲ again.

To insert blank space on a dub (copy) tape instead of unwanted material, press the **REC MUTE** button ⓾. The Secondary (playback) Transport will continue to play, but the Primary (record) Transport will record four seconds of blank tape and then go into the pause mode. When you wish to resume normal dub recording, press the **PAUSE** button ⓲.

NOTES:
• All transport function controls except for **STOP**, **PAUSE** and **REC MUTE** are inoperable during dubbing.

• The **INPUT LEVEL** control is not operable during dubbing. The DC520 will automatically set proper audio levels.

• The **DOLBY NR** circuits are not used during dubbing.

• Since the audio quality of any dub is slightly less than the original tape, it is recommended that all copies be made from original tapes, not from other copies.

• During dubbing the **RECORD LEVEL INDICATOR** will show the level from the playback (original) tape in the Secondary Transport.

Synchro Reverse Dubbing

The Sync Reverse mode allows both transports to be reversed at exactly the same time during dubbing operations. This is particularly convenient when using tapes with different lengths, as it permits copies with the same contents as the original. Follow these steps to start Sync Reverse dubbing:

1. Prepare the unit for dubbing as described on page 6. Make certain both decks are set to the Forward direction by checking to see that the ► indicator ❷⓫ is illuminated for each transport.

2. Place the **DIRECTION MODE** switch ❾ in the center position, over the ⮌ icon.

3. Press the **SYNC REV** button ❺. Note that the SYNC REV indicator ❹ will illuminate.

4. Press either the Copy ❼ or High Speed Copy ❾ button to start the dub process. The tapes will follow one of the two following modes, depending on the relationship of the length of the original tape to the copy tape:

• If the original tape (in the Secondary Transport for playback) is shorter than the record tape (in the Primary Transport), the dub will start by recording until the end of the first side of the original. When the original tape's first side has been dubbed the Secondary (playback) Transport will stop, while the Primary (Record) Transport will continue in a "no signal" mode, recording blank material. When the Primary Transport cassette reaches the end of its first side, both tapes will reverse, and the dub will continue with the second side of the original being dubbed to the beginning of the copy tape. The recording will continue until the playback tape ends. At that time both transports will stop simultaneously.

• If the original tape (in the Secondary Transport for playback) is longer than the record tape (in the Primary Transport), the dub will start by recording through the end of the (recording) tape in the Primary Transport. At the end of the (recording) Primary tape, the Primary Transport will stop, and the Secondary Transport will continue playback. At the end of the Secondary cassette, both tapes will reverse direction and the recording process will resume. The recording will continue until the Primary (record) tape ends. At that time both transports will stop simultaneously.

NOTE: When playback tape is longer than the record tape, as described above, some of the material at the end of each side of the playback tape will not be recorded on the dub.

Remote Control Operation

The DC520 features a built in remote sensor that enables certain functions of the Primary Transport to be controlled with the system remote supplied with many Harman Kardon products. The DC520 is also compatible with the "Harman Kardon Codes" available in many preprogrammed remote controls. Consult the instructions supplied with your receiver or the remote control for information on any programming that may be required to operate the DC520.

When using a remote control remember to point the remote at the DC520's front panel sensor ❸.

Note: The DC520 will only respond to remote commands for transport func-

tions. Power On/Off is NOT controlled via the remote system.

Maintenance

Cleaning the Tape Heads
Tape heads should be cleaned periodically to remove tape particles which gradually build up on the heads during normal use. This dirt will impair sound quality and may cause increase tape head wear. Tape heads may be cleaned in one of two ways:

1. Use a commercial tape cleaning cassette. A wide variety of these products is available from your dealer. Carefully follow the instructions in the cleaning kit to avoid damage to your DC520.

2. Remove the cassette from the transport to be cleaned. Slightly dampen a cotton swab with isopropyl alcohol or the tape head cleaning solution available from many dealers. Gently rub the exposed surfaces of each head. Use a second moistened swab to clean other metal surfaces that may be coated with tape residue such as guide pins. Be careful to keep the swab away from rubber rollers unless you are using a cleaning liquid that is specifically approved for use on rubber rollers.

Demagnetization
Tape heads and other internal parts will gradually pick up magnetic fields that may add noise to your recordings or possibly cause partial erasure of recorded tapes. To prevent this problem, tape heads should periodically be demagnetized using either of two devices:

1. A battery powered demagnetizer is easiest to use. In the shape of a tape cassette, it simply needs to be inserted into the transport. Carefully follow the manufacturer's instructions to insure proper results.

2. Hand held, AC powered, demagnetizers are more effective as they generate stronger fields. Consult your dealer for information on this type of unit and be certain to follow the instructions carefully. When using this type of unit be certain to keep it away from prerecorded tapes when it is turned on, as it may erase them.

Care of Tapes
1. Store cassettes in their cases, in a location away from direct sunlight, excessive heat and high humidity.

2. Avoid placing a tape near a television set or loudspeaker. Their magnetic fields may partially erase the material on a recorded tape.

3. To avoid accidental erasure of the material on a cassette, remove the two small square tabs located on the top edges of the cassette. When these tabs are removed the tape may not be used for recording. To record on a tape that has previously had the protection tabs removed, carefully cover the small holes with adhesive tape.

4. Do not use old cassettes whose internal tape reels no longer move smoothly. If you hear unusual noises during tape motion it is wise to discard the tape to prevent jams or damage to your machine.

Specifications

Track System:	4 Track, 2 Channel Stereo
Tape Speed:	Normal Play/Record: 1⅞ ips (4.76 cm/sec)
	High Speed Copy: 3¾ ips (9.5 cm/sec)
Wow and Flutter (WRMS):	0.06%
Frequency Response (Overall, –20 dB)	
Metal Tape:	25Hz–19Khz
Chrome Tape:	25Hz–18Khz
Normal Tape:	25Hz–17Khz
Signal to Noise Ratio (Overall):	
Dolby C on:	79 dB
Dolby B on:	69 dB
NR Off, 3% THD:	59 dB

Fast Wind Time:	110 seconds for C-60
Line Input:	97 mV, 50K ohms
Line Output:	0.52 V for 50K ohm load
Headphone Impedance:	8 ohms
Dimensions (W x H x D)	17.4 x 5.8 x 11.2 inches
	442 x 147 x 284 mm
Weight	10.14 lbs / 4.6 kg.
Power Requirement	120 VAC / 60 Hz
Power Consumption	14 Watts

Troubleshooting

The DC520 is designed for trouble free operation. However, like any mechanical device it may occasionally malfunction. In most cases the trouble can be resolved simply by finding the problem from the list below and following the steps outlined. If a problem persists, contact your dealer or an authorized Harman Kardon Service Center.

PROBLEM	*CAUSE*	*SOLUTION*
The unit does not turn on when the power switch is pressed.	• No AC Power.	• Make certain AC power cord is firmly plugged into a live outlet. • Check to see if outlet is switch controlled.
No sound is heard when PLAY is pressed.	• Tape may be blank. • Improper settings at receiver or preamp. • Interconnect cables connected to wrong jacks.	• Check to see if level indicators do not move. This confirms a blank tape. • Check switch settings at receiver. Make certain that Tape Monitor or correct input is selected. • Make certain that the OUTPUT of the DC520 is connected to the TAPE IN jack of your receiver or preamp.
The cassette does not record.	• Record protection tabs removed. • Record Level knob set to low. • No source signal feeding recorder. • Interconnect cables connected to wrong jacks.	• Place tape over record protection holes. • Increase input level. • Check Tape Monitor and Source Selection on receiver to make sure the proper source is selected. • Make certain that the DC520 INPUT jacks are connected to the TAPE OUT jacks on your receiver or preamp.
Cassette dub does not record.	• Tapes in wrong transport.	• Make certain that source tape is in Secondary Transport and blank (record) tape is in Primary Transport.
Newly recorded tapes have distorted sound.	• Input level too high. • Mismatched Dolby NR modes. • Tape is worn.	• Reduce input level so that record level display peaks at “0” to “+3”. • Make certain that Dolby NR mode used for playback is identical to mode used in recording. • Replace cassette with new, high quality tape.
Playback sound is muffled, distorted or has reduced high frequencies.	• Mismatched Dolby NR modes. • Tape heads are dirty. • Tape heads have become magnetized.	• Make certain that Dolby NR mode used for playback is identical to mode used in recording. • Clean tape heads. • Demagnetize tape heads.

All specifications are subject to change without notice.

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